IN THE CLAIMS

1. (currently amended) A transparent or translucent sintered ceramic scintillator composition comprising, prior to annealing, the composition $(Tb_{1-y}Ce_y)_aD_zO_{12}$; wherein D is at least one metal selected from the group consisting of Al, Ga, and In; a is in a range from about 2.8 up to and including 3.1; y is in a range from 0.0005 up to including 0.2; and z is in a range from 4 up to and including 5.1.

2. (currently amended) A transparent or translucent sintered ceramic scintillator composition comprising, prior to annealing, the composition $(Lu_{1-y}Ce_y)_aD_zO_{12}$; wherein D is at least one metal selected from the group consisting of Al, Ga, and In; a is in a range from 2.8 up to and including 3.1; y is in a range from 0.0005 up to and including 0.2; and z is in a range from 4 up to and including 5.1.

3. (currently amended) A transparent or translucent sintered ceramic scintillator composition comprising, prior to annealing, the composition $(G_{1-x-y}A_xRE_y)_aD_zO_{12}$; wherein G is at least one metal selected from the group consisting of Tb and Lu; A is at least one rare earth metal selected from the group consisting of Y, La, Gd, Lu, and Yb when G is Tb and selected from the group consisting of Y, La, Gd, Tb, and Yb when G is Lu; RE is at least one rare earth metal selected from the group consisting of ~~Ce, Pr, Nd, Sm, Eu, Dy, Ho, Er, and Tm;~~ Ce, Nd, Sm, Eu, Dy, Ho, Er, and Tm; D is at least one metal selected from the group consisting of Al, Ga, and In; a is a range from about 2.8 up to and including 3.1; x is in a range from 0 up to and including 0.5; y is in a range from 0.0005 up to and including 0.2; and z is in a range from 4 up to and including 5.1.

4. (original) A scintillator composition in accordance with Claim 3, wherein A is Lu, RE is Ce, and D is Al.

5. (original) A scintillator composition in accordance with Claim 3 comprising the composition $(Tb_{1-y}Ce_y)_aAl_5O_{12}$.

6. (original) A scintillator composition in accordance with Claim 3 comprising the composition $(Tb_{1-x-y}Lu_xCe_y)_aAl_5O_{12}$.

7. (currently amended) A transparent or translucent sintered ceramic scintillator composition comprising, prior to annealing, the composition ~~$(Tb_{1-x}Lu_xCe_y)_3Al_5O_{12}$~~ $(Tb_{1-x-y}Lu_xCe_y)_3Al_5O_{12}$, where $0 < x \leq 0.5$ and y is in the range from about 0.0005 to about 0.2.

8. (currently amended) A transparent or translucent sintered ceramic scintillator composition comprising, prior to annealing, the composition $(Tb_{1-y}Ce_y)_3(Al_{1-r-s}Ga_rIn_s)_zO_{12}$ where y is in the range from about 0.0005 up to and including 0.2, and z is in the range from about 4 up to and including 5.1, and $0 \leq r \leq 0.5$ when $0 < s \leq 0.5$ and $r+s < 1$, or $0 < r \leq 0.5$ when $0 \leq s \leq 0.5$ and $r+s < 1$.

9. (currently amended) A transparent or translucent sintered ceramic scintillator composition comprising, prior to annealing, the composition $(Tb_{1-y-u-v-w}Ce_yY_uGd_vSm_w)_3Al_zO_{12}$, where y is in the range from about 0.0005 up to and including 0.2; and z is in the range from about 4 up to and including 5.1, $0 \leq u, v, w \leq 0.5$, and $0.0005 \leq y+u+v+w < 1$.

10. (original) A scintillator in composition in accordance with Claim 9 wherein w=0.

11. (currently amended) A transparent or translucent sintered ceramic scintillator composition comprising, prior to annealing, the composition $(Tb_{1-x-y}A_xCe_y)_3Al_zO_{12}$, where A is Y or Gd, $0 < x \leq 0.5$, and y is in the range from about 0.0005 up to and including 0.2, and z is in the range from about 4 up to and including 5.1.

12. (currently amended) A transparent or translucent sintered ceramic scintillator composition comprising, prior to annealing, the composition $Lu_{0.8}Tb_{2.2}Al_5O_{12}$ activated with Ce^{3+} ions.

13. (currently amended) A transparent or translucent sintered ceramic scintillator composition comprising, prior to annealing, the composition $(G_{1-x-y}A_xRE_y)_aD_zO_{12}$, wherein D is selected from the group consisting of Al, Ga and In, G is selected from the group consisting of Tb, Y, La, Gd, and Yb, A is selected from the group consisting of Lu, Y, La, Gd, and Yb, and RE is selected from the group consisting of Ho, Er, Tm and Ce, and x is

in the range from 0 up to about 0.2774, inclusive, y is in the range from about 0.001 up to about 0.012, inclusive, a is in the range 2.884 up to about 3.032, inclusive, and z is in the range from about 4.968 up to about 5.116, inclusive.

14. (original) A scintillator composition in accordance with Claim 13 wherein G is Tb, A is Lu, RE is Ce, and D is Al, and further wherein a is about 3.004, z is about 4.996, x is in the range from about 0 up to about 0.267, inclusive, and y is in the range from about 0.002 to about 0.012, inclusive.

15. (original) A scintillator composition in accordance with Claim 13 wherein G is Tb, A is Lu, RE is Ce, and D is Al, and further wherein a is about 2.984, z is about 5.016, x is in the range from 0 up to and including about 0.2774, inclusive, and y is in the range from about 0.001 up to and including about 0.0104, inclusive.

16. (currently amended) A method for preparing a terbium or lutetium containing garnet scintillator having increased resistance to radiation-induced changes in scintillator efficiency comprising annealing a sintered garnet scintillator to a transparent or translucent ceramic in a controlled atmosphere comprising a predetermined amount of oxygen for a predetermined time and temperature, such that the annealed scintillator comprises a smaller radiation-induced change in efficiency of signal generation than a same scintillator not treated by said annealing, wherein said garnet scintillator comprises at least one metal selected from the group consisting of terbium (Tb) and lutetium (Lu), and is activated with at least one rare earth element selected from the group consisting of Ce, Pr, Nd, Sm, Eu, Dy, Ho, Er and Tm, said scintillator being capable of emitting visible light in response to excitation by high-energy radiation comprising X, β, or γ radiation, and wherein prior to annealing, said scintillator comprises the composition $(G_{1-x-y}A_xRE_y)_aD_zO_{12}$, wherein D is selected from the group consisting of Al, Ga and In, G is selected from the group consisting of Tb, Y, La, Gd, and Yb, A is selected from the group consisting of Lu, Y, La, Gd, and Yb, and RE is selected from the group consisting of Ho, Er, Tm and Ce, and x is in the range from 0 up to about 0.2774, inclusive, y is in the range from about 0.001 up to about 0.012, inclusive, a is in the range 2.884 up to about 3.032, inclusive, and z is in the range from about 4.968 up to about 5.116, inclusive.

17. (original) A method in accordance with Claim 16 wherein G is Tb, A is Lu, RE is Ce, and D is Al, and further wherein a is about 3.004, z is about 4.996, x is in the range from about 0 up to about 0.267, inclusive, and y is in the range from about 0.002 to about 0.012, inclusive.

18. (original) A method in accordance with Claim 16 wherein G is Tb, A is Lu, RE is Ce, and D is Al, and further wherein a is about 2.984, z is about 5.016, x is in the range from 0 up to and including about 0.2774, inclusive, and y is in the range from about 0.001 up to and including about 0.0104, inclusive.

19. (currently amended) A sintered, transparent or translucent ceramic scintillator having increased resistance to radiation-induced changes in scintillator efficiency comprising a garnet scintillator capable of emitting visible light in response to excitation by high-energy radiation comprising X, β, or γ radiation, wherein said garnet scintillator comprises at least one metal selected from the group consisting of terbium (Tb) and lutetium (Lu), and is activated with at least one rare earth element selected from the group consisting of Ce, Pr, Nd, Sm, Eu, Dy, Ho, Er and Tm, and wherein said scintillator has been annealed in a controlled atmosphere containing a predetermined amount of oxygen for a predetermined time and temperature, such that the annealed scintillator comprises a smaller radiation-induced change in efficiency than a same scintillator not treated by said annealing, and wherein prior to annealing, said scintillator comprises the composition $(G_{1-x-y}A_xRE_y)_aD_zO_{12}$, wherein, D is selected from the group consisting of Al, Ga and In, G is selected from the group consisting of Tb, Y, La, Gd, and Yb, A is selected from the group consisting of Lu, Y, La, Gd, and Yb, and RE is selected from the group consisting of Ho, Er, Tm and Ce, and x is in the range from 0 up to about 0.2774, inclusive, y is in the range from about 0.001 up to about 0.012, inclusive, a is in the range 2.884 up to about 3.032, inclusive, and z is in the range from about 4.968 up to about 5.116, inclusive.

20. (original) A detector element of an x ray CT scanner comprising the scintillator of claim 19.

21. (original) A scintillator in accordance with Claim 19 wherein G is Tb, A is Lu, RE is Ce, and D is Al, and further wherein a is about 3.004, z is about 4.996, x is in the

range from about 0 up to about 0.267, inclusive, and y is in the range from about 0.002 to about 0.012, inclusive.

22. (original) A detector element of an x ray CT scanner comprising the scintillator of claim 21.

23. (original) A scintillator in accordance with Claim 19 wherein G is Tb, A is Lu, RE is Ce, and D is Al, and further wherein a is about 2.984, z is about 5.016, x is in the range from 0 up to and including about 0.2774, inclusive, and y is in the range from about 0.001 up to and including about 0.0104, inclusive.

24. (original) A detector element of an x ray CT scanner comprising the scintillator of claim 23.